



SUMMARY OF THE FINAL BUSINESS CASE

Broken Hill Long-Term Water Supply Solution

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More information

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1

Preface

1.1 Purpose of this document

This Summary presents critical elements of the Broken Hill Long-Term Water Supply Solution Final Business Case dated 31 March 2016 (the Final Business Case) and analysis of the full range of options. Together these underpinned NSW Government's decision to invest in a long-term transformational project to secure water supply for Broken Hill in the Far West of the State (the Initiative).

The NSW Government is committed to increasing the transparency of decision making in NSW. This Summary brings together an extensive set of documentation into a more concise document to provide citizens of NSW with confidence that a robust evaluation process was undertaken to inform the investment.

This Summary reflects documentation as at the time of the investment decision and has not been updated to reflect any subsequent changes to water supply or demand, or refinements to specific Project design and delivery mechanisms. For completeness, a brief overview of the Preferred Option's current state is outlined in section 1.3.

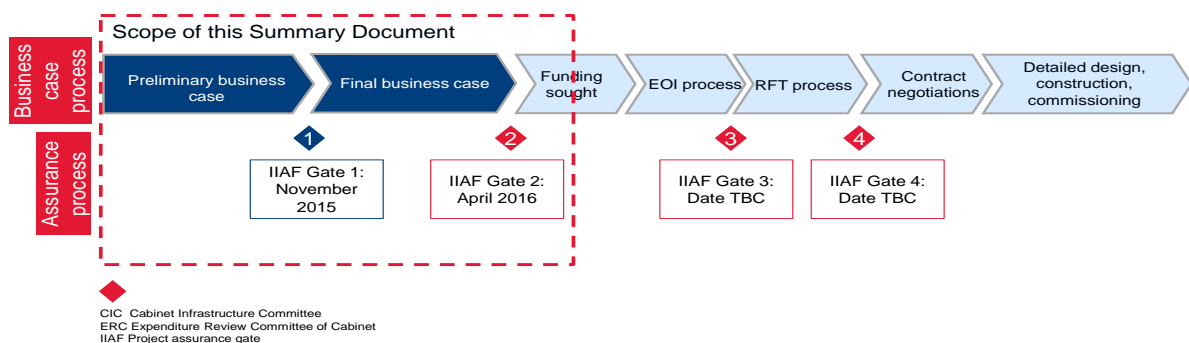
1.2 Process and oversight for the Final Business Case

Oversight for the Initiative was provided by a multi-agency Steering Committee, established specifically for the development of the Final Business Case, with representatives from the Department of Industry – Crown Lands and Water (the then DPI Water), NSW Treasury, Department of Premier and Cabinet (DPC), NSW Department of Planning and Environment (DPE) and Infrastructure NSW (as an Observer).

The Final Business Case was also informed by stakeholder consultation over a 12 month period. Community, business and government stakeholders were engaged through formal consultation forums, workshops, site visits, teleconferences and meetings.

Both the Final Business Case and the Broken Hill Long-Term Water Supply Preliminary Business Case (which was developed in 2015) were subject to the Infrastructure NSW Infrastructure Investor Assurance Framework (IIAF)¹, which provides independent oversight of the State's infrastructure program. The process followed by DPI Water in developing the Initiative and Gateway Reviews undertaken in accordance with the IIAF is illustrated below.

Figure 1-1: Process to develop the business case



The Initiative followed the development and approval of a final business case, in May 2015, for a short-term (emergency) water solution for Broken Hill, Silverton, Menindee and Sunset Strip.

¹ Refer to www.insw.com for the IIAF guidelines

The Final Business Case was also supported by extensive expert analysis, including:

- Hydrological security modelling (NSW DPI Water, Surface Water Resource Management).
- Talyawalka hydrogeological feasibility (Geoscience Australia and verified by DPI Water)
- Bore field design and construction cost estimates (GHD Consulting)
- Geotechnical and water supply system option development and analysis, including NSW River Murray pipeline design and cost estimate (NSW Public Works, Water Solutions)
- Economic appraisal of options (NSW Department of Industry, Skills and Regional Development)
- Financial appraisal of options, market sounding and procurement options (Deloitte)
- Water pricing impact analysis (Danu Consulting)

The consultations and expert analyses, in conjunction with research and analysis performed by the Initiative team informed the objectives for the Initiative and the preferred water supply solution.

1.3 Overview of the Initiative's current status

A brief overview of the Initiative's current status is outlined below:

- The Preferred Option was approved for funding in September 2016.
- In November 2016, the Minister for Primary Industries and Regional Water issued a Direction to the board of WaterNSW under section 20P of the *State Owned Corporations Act 1989*². In summary, this required WaterNSW to:
 - Arrange for the construction, operation and maintenance of a pipeline from the River Murray to deliver low salinity raw water to the existing Mica Street Water Treatment Plant in Broken Hill;
 - Use best endeavours to make the pipeline operational by December 2018,
 - Fund the capital costs for constructing the pipeline from existing resources, or otherwise borrow the required funds.
- Although the Final Business Case identified Essential Water as best positioned to own and operate the pipeline, further engagement and analysis highlighted insufficient capacity within the organisation to deliver this large-scale water project within the tight project timeline. WaterNSW has a long history of delivering large-scale water infrastructure projects on time and within budget.
- As proponent, and in accordance with that Direction, WaterNSW then undertook further work to develop the required design and delivery mechanisms, undertook engagement of stakeholders and the community, developed appropriate tender documentation and undertook the necessary environmental and cultural heritage studies to achieve the required environmental approvals.
- In September 2017, the Minister for Regional Water issued a second Direction³, which in summary required WaterNSW to:
 - Ensure minimum targets set in the NSW Infrastructure Skills Legacy Program are met for the construction of the pipeline; and

²<https://www.parliament.nsw.gov.au/la/papers/DBAssets/taledpaper/webAttachments/70615/Direction%20under%20s%2020P%20of%20the%20State%20Owned%20Corporations%20Act.pdf>

³<https://www.parliament.nsw.gov.au/lc/papers/DBAssets/taledpaper/WebAttachments/71961/Notice%20of%20direction%2011%20October.pdf>

- Ensure that Australian rolled steel is used in construction.
- WaterNSW commenced a multi-staged competitive market process under a Design, Build, Operate and Maintain (DBOM) procurement model.
- Evaluation of the responses to that tender has now been completed and a successful tenderer identified.
- WaterNSW has now contracted engineering and construction contractor John Holland, who are partnering with pipeline specialists MPC Group and water utility provider TRILITY to deliver the works and operate the scheme under the DBOM model.
- Construction is expected to be completed by December 2018, at which point Broken Hill will benefit from a long-term secure water supply.

The Summary of the business case is written from a point in time which pre-dates the decision to direct WaterNSW to deliver what is now “the Project”. The decision to direct WaterNSW was advantageous for a number of reasons, but subsequently resulted in certain parameters of the business case, as outlined below, changing.

These changes included:

- Funding of the up-front capital required to deliver the Project (now by WaterNSW)
- Delivery and procurement strategies
- Communications and stakeholder engagement plans
- The location of the River Murray offtake, which was ultimately determined to be located at the same location as the existing Wentworth Council raw water offtake upstream of the River Murray/ Darling River confluence to take advantage of more reliable higher quality water, and noting the time required to obtain the necessary land access and environmental approvals for a route north from Fort Courage were not compatible with the project’s delivery date of December 2018;
- The final route through the Wentworth township, which following consultation with Wentworth Shire Council, was relocated to the eastern side of town to avoid local impacts as much as possible, and includes a number of additional river crossings.
- The decision to adopt a 20 year Operations and Maintenance term, as opposed to the 15 year term assumed in the business case, to drive greater opportunities for efficiencies and lower whole-of-life costs.
- The scope of works being delivered, recognising that Essential Water own and operate the existing water supply distribution network in the region, and are responsible for funding capital upgrades on their own existing network of assets.
 - The Preferred Option was re-scoped to exclude the surrounding communities of Menindee and Sunset Strip, as infrastructure upgrades to address the needs of these communities will now be considered by Essential Water.

The Final Business Case demonstrated the case for change, and the Preferred Option to meet the Government’s objectives. It is within those objectives, and the broad parameters of the preferred investment identified by the business case, that the NSW Government approved the investment decision and directed WaterNSW to deliver “the Project” in accordance with its directions.

2 Summary of Business Case

Broken Hill, Silverton and its surrounding satellite communities are running out of a secure supply of water. In May 2015, a short-term (emergency) water solution for the Broken Hill region was implemented in response to dwindling water supply and declining water quality. This included a Reverse Osmosis Treatment Plant to treat surface water and bore field development. In the absence of significant inflows, the short-term measures will have exhausted all available surface water and ground water supply options by April 2019.

In order to meet the Government's stated objective of no population displacement, and ensure the long-term sustainability of Broken Hill, residents and industry need a reliable water supply that meets quality standards and gives the community confidence.

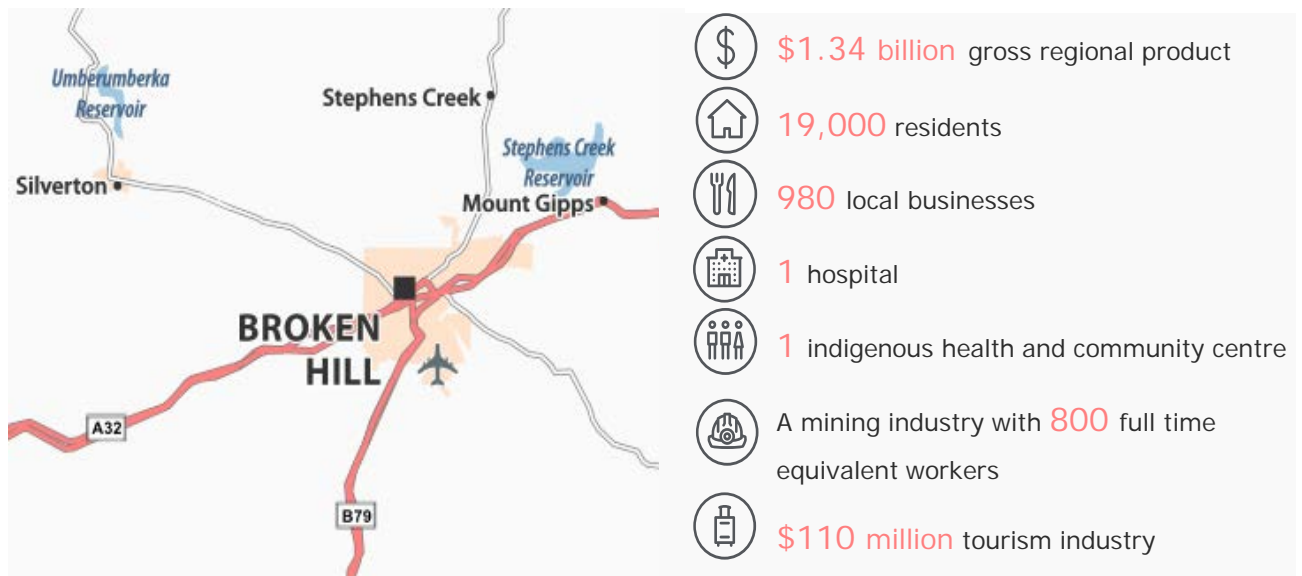
To address this, NSW Department of Primary Industries (DPI Water) initiated a project to provide a secure, long-term water supply solution for Broken Hill and Silverton.

At the time of the Business case, the Project needed to be operational by October 2018, six months prior to water sources from the short-term strategy being exhausted. That situation has now changed following some inflows.

2.1 Broken Hill profile and the investment need

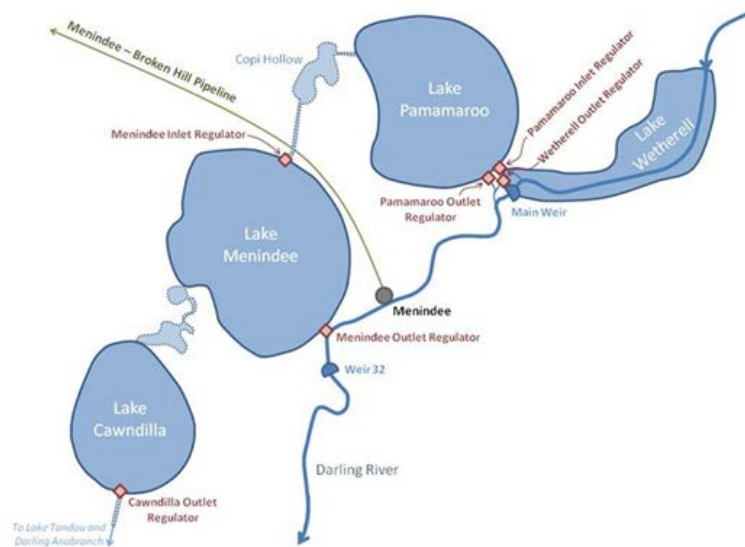
Broken Hill is the largest town in the Far West of NSW and supports a number of industries. A profile of the region is presented below.

Figure 2-1: Broken Hill profile



Since 1952, Broken Hill has sourced water from the Menindee Lakes, which forms part of the Murray Darling Basin. Water from the Menindee Lakes is transported to Broken Hill via a 100km pipeline owned and operated by Essential Water. These arrangements are illustrated below.

Figure 2-2: The Menindee Lakes



The Menindee Lakes, however, is an ephemeral water source which is an inefficient and unreliable water storage system. Water modelling of the Menindee Lakes estimates that approximately 420GL of water is lost every year through evaporation, as a result of the hot, dry conditions in the region. By comparison, customers in the Broken Hill region require access to approximately 10GL per annum, or just 2% of the amount lost to evaporation. This provides the community little confidence in the long-term security of water supply.

2.2 Water supply problem

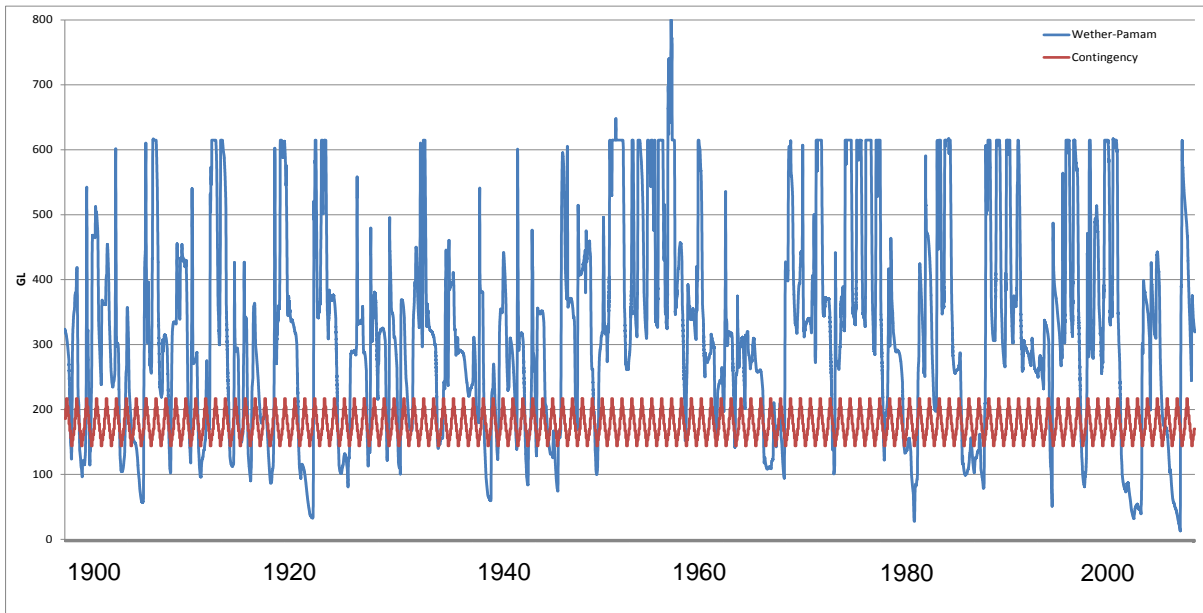
2.2.1 The problem

At the time of the business case, the Far West was experiencing the longest drought on record. The drought was one of three that the Darling River catchment, including Broken Hill, has experienced over the last 15 years. The frequency and severity of droughts experienced recently is only comparable to the early 1900s.

The figure below shows the accessible storage volumes (the blue line) relative to contingency thresholds (the red line) over the last century. The contingency is the amount of water that is needed in the Menindee Lakes to provide 18 months of future water supply. The variation shows the change in contingency between seasons. The high level of variation in storage levels indicates that water is lost from the Menindee Lakes at rapid rates.

A drought is experienced when the storage levels fall below the contingency levels. These breaches usually result in a response from government and/or the water retailer to restrict demand and plan alternate water supply sources.

Figure 2-3: Menindee Lakes water storage volumes (1895-2009)



Contingency thresholds have been breached on 24 occasions in the last 114 years. This suggests that, on average, there is a drought once in every five years.

Based on the data from the last century, the table below shows how conditions at Broken Hill compare to NSW government guidelines for the frequency of water restriction events. Broken Hill spends more than four times longer in water restrictions compared to the NSW current urban water supply target.

Table 2-1: Frequency and duration of water restrictions in Broken Hill

	Base Case	NSW Guidelines Target
Amount of time spent in drought restrictions	21%	5%
% of years drought restrictions are required	46%	10%

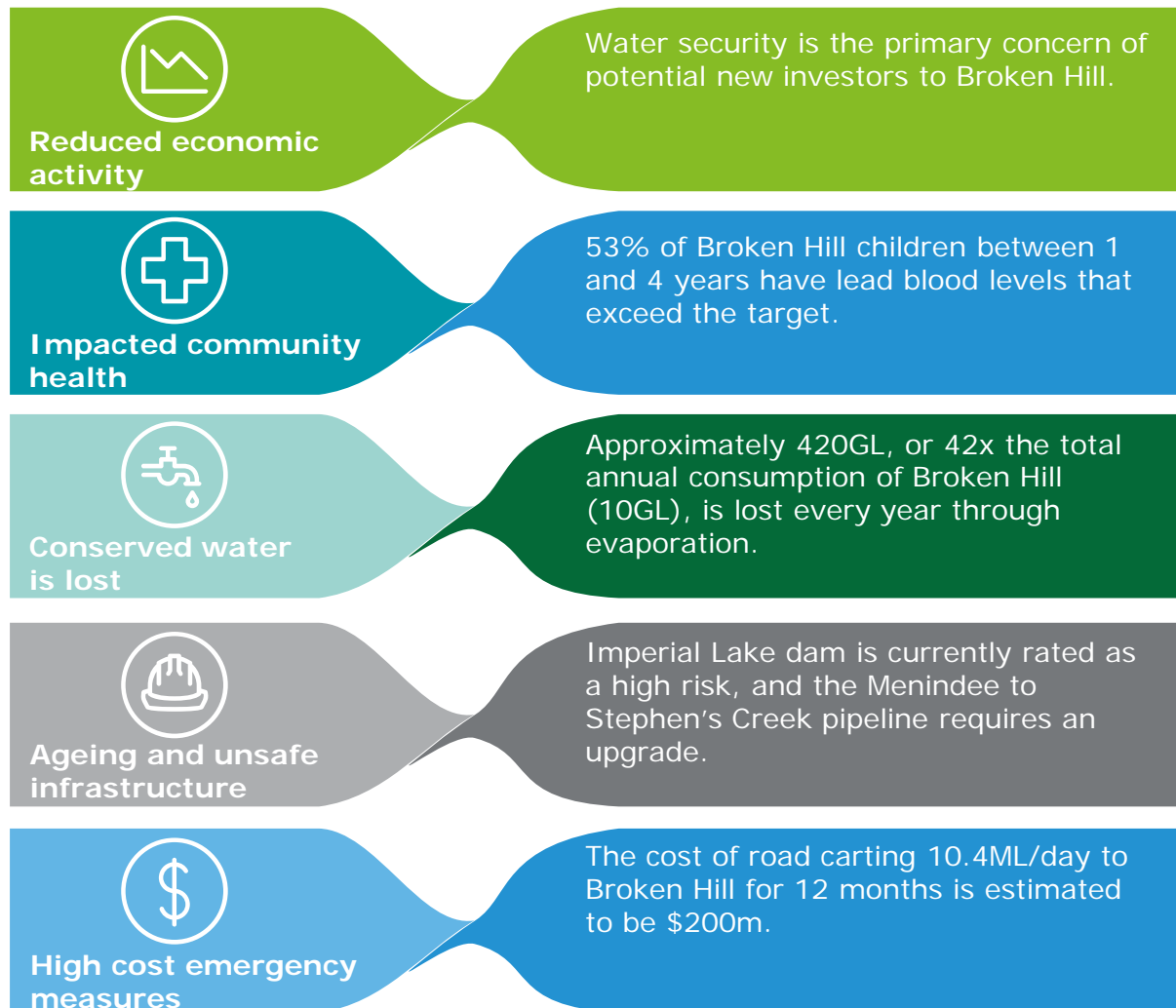
2.2.2 The problem in the future

Research and regional climate modelling has identified that temperatures in Far Western NSW are expected to increase. There are projected to be more hot days and fewer cold nights. Additionally, climate variability contributes to uncertainty around rainfall patterns within catchments in the Northern Basin that feed the Darling River. This suggests that droughts will become more frequent in the Broken Hill region. The future conditions further reduces the reliability of the water security that is provided by the Menindee Lake system.

2.3 Negative community impacts of a lack of water security

Low water security and increasing severity of drought events is impacting the local community and industries. An overview of the negative impacts from not having a reliable long-term water supply are shown in the diagram below.

Figure 2-4: Impacts of no long-term water supply



Reduced economic activity - The economic impacts of reduced water security include:

- Reduced tourist activity and long-lasting declines in the level of business
- Increased pressure on the region's mining industry
- Investment from the private sector is less likely
- Reduced value for money from public investment in infrastructure due to fewer numbers of visitors
- Reduced employment

Impacted community health - water restrictions limit the use of water for suppressing lead dust. This places town residents, particularly young children, at risk. High levels of lead in the blood can have a range long-term health effects, including anaemia, reduced kidney and nerve function, and increased blood pressure.

Conserved water is lost - Water restrictions have a minor impact on the rate at which water storage is depleted. This is because the amount of water conserved is insignificant when compared to the amount that is lost through evaporation.

Ageing and unsafe infrastructure - almost all critical water infrastructure associated with delivering water to Broken Hill is approaching the end of its designed life, including:

- Menindee to Broken Hill pipeline
- Imperial Lake Dam - rated a high risk

- Stephens Creek - listed as requiring upgrade

High cost emergency measures - A lack of water security requires costly emergency measures. When water secured through the short-term solution eventually depletes, road carting will be the only way to secure bulk water supply.

2.4 Benefits of the securing a long-term water supply

There are a range of benefits which are received by the community, local industry and the state more broadly, including the government. Some of these benefits are measurable in dollar values (quantitative) whilst others cannot (qualitative), but are still valued. The benefits, categorised by recipient group, are presented in the figure below.

Benefit recipient	Community	Local Industry	NSW / Government
Benefit	Improved employment prospects contribute to more secure incomes	Certainty of long-term water supply simplifies investment decisions for industry	Greater certainty stimulates investment, employment, taxation and spending
	Avoided relocation costs in the event of depleted potable water supply	Avoided cost of damage to commercial equipment with reliable quality water supply	Minimising risk to local population living standards reduces political pressure
	Avoided cost of household desalination products	Avoided cost of investing in private water infrastructure arrangements	Avoided financial cost of relocating community
	Reliable quality of bulk water supply improves services at health and care facilities	Avoided damage to financial position and credit ratings	Avoided cost of future short-term emergency water supply responses
	Reduced personal stress relating to employment and quality of life	Economic value of marginal water savings remaining with agricultural sector participants	Avoided cost of degradation of existing infrastructure due to poor quality water
	Adequate provision to suppress lead dust maintains amenity value of outdoor activities	Improved prospects for peripheral services to mining sector	Avoided cost of supporting industry impacted by loss of reliable water supply
	Avoided social cost of water restrictions	Avoided cost of damage to medical equipment with reliable quality water supply	Contributes to meeting Commonwealth mandated MDB water savings targets
		Certainty of potable water supply improves attractiveness for tourism sector	Improved natural resource efficiency
		Certainty of potable water supply improves attractiveness for property sector	

2.5 Need for investment and objectives

There is a clear need to establish a reliable and sustainable long-term water supply to address the economic and social issues of a lack of water security. A set of detailed objectives were developed to inform the design of options and then evaluate them. The objectives can be categorised into two groups:

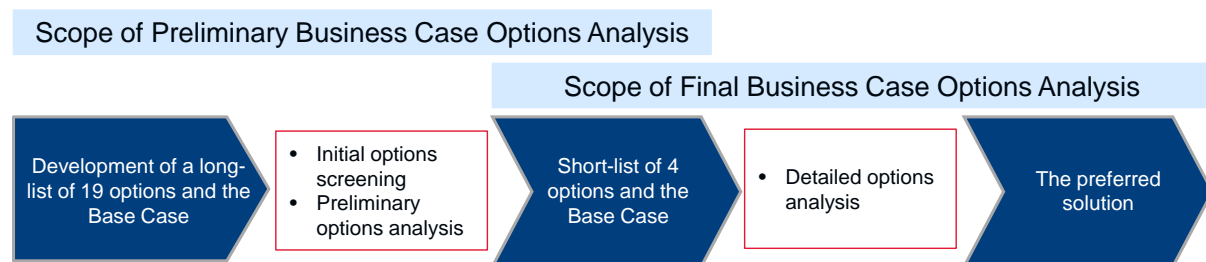
1. **Binary Threshold Criteria** – If the option does not meet all of these objectives then it is ruled out.

- Water security - a sustainable water solution by October 2018 that meets the NSW Guidelines on Assuring Future Urban Water Security (the 5/10/10 rule). An operational date of October 2018 provides a short period of contingency prior to exhaustion of all existing surface and shallow bore ground water sources (then estimated to be around April 2019).
 - Water supply service level requirements sufficient to meet peak daily total water consumption of 37.4ML (there is a high degree of seasonality in demand)
 - Quality of water supply that achieves potable and chlorinated water supply to customers in accordance with Australian Drinking Water Guidelines and public health standard for raw water.
2. **Performance Criteria** – these objectives are used to evaluate how each of the options that meet the threshold criteria perform relative to each other.
- Value for money - deliver value for money to the State and NSW Government
 - Level of risk – both quantified to reflect project delivery risk and systemic risk associated with ongoing operations or service risk over the life of the Project
 - Affordability of potable water for communities and of water for industry.

2.6 Options analysis

The Preliminary Business Case explored 19 water supply solution options (the long list of options), to understand the broad range of solutions that could deliver water security to the region, in addition to maintaining the current water supply arrangement. The purpose of this analysis was to develop a short list of options for detailed analysis through a Final Business Case. The process for analysing the options is depicted in the figure below.

Figure 2-5: Options analysis process



2.6.1 Long-list options analysis (the Preliminary Business Case)

The long list of options for supplying Broken Hill with a long-term water supply solution were based on three categories:

- Demand management and other solutions to reduce supply pressure on the Menindee Lakes system
- Supplementing the existing Menindee Lakes system with groundwater or surface water solutions
- Sourcing raw water from the River Murray to replace Broken Hill's reliance on the Menindee Lakes system.

The long list of options were evaluated and shortlisted within the Preliminary Business Case against two key criteria:

1. The ability of each of the 19 long-list options to meet the prescribed objectives of the Project
2. The relative ability of options to provide value for money for NSW.

This initial screening process resulted in the majority of options to be eliminated due to insufficient water security and water supply capacity, or being exceedingly costly relative to the other options, or taking too long to implement given the time critical nature of the solution needed. The table below provides a summary of the long list of options that were considered, but not shortlisted.

Table 2-2: Summary of considered long-list options

Category	Option description	Progress to short list	Rationale for progression / elimination
i	Third pipe system and rainwater tanks to reduce water demand on Menindee Lakes	✗	Not a reliable bulk water source as it relies on local rainfall No guarantee of drinking water standard Negligible water savings (~1% of average annual demand)
i	Subsidy to move from evaporative cooling to Reverse Cycle AC	✗	Does not guarantee bulk water supply Negligible water savings (~8% of average annual demand) Significant financial cost for negligible impact
i	Water licences buyback to secure Menindee Lakes supply	✗	Large volumes of water buyback required given significant transport losses (i.e. seepage, evaporation) High cost of temporary water allocation buybacks each time water availability is low Regional economic loss associated with reduced agricultural production
i	Effluent re-use, of potable standard, to supplement Menindee Lakes supply	✗	2ML/day production capacity is only 13% of average daily water consumption Effluent is already being re-used for non-potable consumption Significant cost to treat waste to potable standard
i	Road carting to supplement Menindee Lakes supply	✗	Highly expensive when operational (~500 tanker loads per day) Logistical issues
i	Rail carting to supplement Menindee Lakes supply	✗	Unable to deliver required volume as rail network has capacity to deliver 8ML/day, or 50% of average daily demand Highly expensive when operational
ii	Shallow aquifer at Talyawalka to supplement Menindee Lakes supply (i.e. augmentation of the	✓	Shallow aquifer has 5 years of water yield Likely to require RO treatment

	second phase of the short-term solution)		Requires investment in existing infrastructure at a cost of approximately \$270m
ii	Groundwater (Lake Menindee Deep Aquifer) with RO Plant and brine fields at Menindee to supplement Menindee Lakes supply	✓	Water yield unknown Extraction and RO treatment allows for 31ML/day of potable water supply Higher groundwater cost than Talyawalka as it requires RO plant, including power supply, and brine field co-located in Menindee
ii	Deep mine water extraction to supplement Menindee Lakes supply	✗	Water yield unknown Faces significant environmental, health and community issues
ii	Managed aquifer scheme to supplement Menindee Lakes supply	✗	Provides water security for Broken Hill Higher groundwater cost than Talyawalka as it requires construction, treatment before injection and after extraction, including power supply co-located in Menindee
ii	Great Artesian Basin bores and pipeline to supplement Menindee Lakes supply	✗	Requires very high capital investment (\$450m investment in bores and pipeline in addition to \$270m investment in existing infrastructure) Requires complex negotiation with other State and territory jurisdictions to achieve solution
ii	Lower Renmark bores and pipeline to supplement Menindee Lakes supply	✗	150km of pipeline required to bore field High saline content water, requiring RO and brine ponds co-located at extraction site Requires negotiation with other State and territory jurisdiction Requires a number of environmental approvals Requires investment in existing infrastructure at a cost
ii	Spencer Gulf – Pipeline and RO to supplement Menindee Lakes supply	✗	Requires very high capital investment (\$780m in addition to \$270m investment in existing infrastructure)
ii	Expansion (lower) of Stephens Creek Reservoir storage capacity to supplement Menindee Lakes supply	✗	Provides insufficient water security Significant capital cost required in existing network infrastructure
ii	New major upstream dam to secure Menindee Lakes supply	✗	No dam has received planning or environmental approval Dams can take upward of 10 years from scoping to operations, passing the critical date (2019) for

			implementation
ii	Weir raising at Wilcannia, Bourke, Walgett, Mungindi and/or Boomi to secure Menindee Lakes supply	✗	Unable to regulate Darling River significantly enough to secure Broken Hill's water supply with the Menindee Lakes The timing of each project's delivery is uncertain
ii	Anabranh pipeline retrofit to supplement Menindee Lakes supply	✗	Only enough capacity in pipeline to secure 21% of Broken Hill's average annual water demand
iii	Pipeline from River Murray NSW (multiple route options)	✓	Designed to supply 37.4ML/day from more secure River Murray water source
iii	Pipeline from Booborowie SA	✓	Initial proposal to provide potable water supply capacity of 25ML/day from more secure River Murray water source

2.6.2 Detailed analysis of short-list options (Final Business Case)

The following options were shortlisted for detailed analysis in the business case. Key pieces of analysis included hydrological modelling to test the water security of options, economic and financial analysis to test value for money for NSW and customers, and risk analysis. This resulted in the base case and shortlisted project options are detailed below:

- **Base Case** - The Menindee Lakes system is drawn upon during periods of water availability and the first stage of the Broken Hill Short-Term Water Supply Strategy is implemented; bulk water carting is applied when the shallow bore field is exhausted. To maintain current water supply arrangements, significant investment is required to replace the failing Menindee to Broken Hill pipeline.
- **Option 1a – The NSW River Murray Western Route Option:** a pipeline from the NSW River Murray to the Mica Street Water Treatment Plant (Mica Street WTP), for the most part following the Silver City Highway
- **Option 1b – The NSW River Murray Eastern Route Option:** a pipeline from the NSW River Murray to the Mica Street WTP, via the townships of Pooncarie and Menindee.
- **Option 2 – Menindee Lakes and Talyawalka bore field:** a shallow aquifer at Talyawalka to supplement existing Menindee Lakes water supply during low surface water availability, or poor surface water quality, periods. The Reverse Osmosis (RO) plant and brine ponds at Broken Hill would be used to treat saline water as required. To maintain current water supply arrangements, significant investment is required to replace the failing Menindee to Broken Hill pipeline. A Lake Menindee deep water aquifer was excluded as representing substantial additional cost.
- **Option 3 – The Unsolicited Proposal for a River Murray Water Transport Offer:** Private sector proposal to construct a pipeline from an offtake at Booborowie, SA on the River Murray, transporting treated (potable) water to the Mica Street WTP over a minimum of 30 years on a capital and specified user charge basis.

Following detailed assessment against the threshold objectives of water security, and further exploration of potential private sector solutions, Option 3 was excluded as it was unable to reliably deliver sufficient water supply until at least 2035. All of the other shortlisted options met the threshold criteria of water security and water quality.

The remaining options were analysed in detail and were supported by a number of feasibility assessments, including further water modelling, engineering design and detailed financial and economic analysis. The economic appraisal, including the Benefit Cost Ratio (BCR), and the Net Present Costs (NPC) (i.e. the net cost in today's dollars) relative to the base case, are set out in the table below for each option.

The results of the options analysis is also set out, assessing each option against the defined evaluation criteria, which reflects the Project objectives.

Table 2-3: Summary options analysis (relative to base case)

Criteria	Sub-criteria	Base Case	Option 1a	Option 1b	Option 2
Water security	NSW Guidelines on Assuring Future Urban Water Security	✘	✓	✓	✓
Water supply service level requirement	Average annual demand	✘	✓	✓	✓
	Peak daily demand	✘	✓	✓	✓
Water quality	Guidelines	✓	✓	✓	✓
Total Capital cost	Nominal \$	\$193.5m	\$470.2m	\$523.8m	\$705.5m
Value for money	BCR (rank) ⁴	n/a	1.089 (1)	0.923 (2)	0.716 (3)
	Financial NPC (rank) ¹	n/a	\$ 27m (1)	\$ 70m (2)	\$ 138m (3)
Quantitative Project risk	Financial NPC using quantitative risk ²	n/a	\$ 34m	\$ 83.6m	\$ 170.7m
Qualitative systemic risk	Peak daily demand 37.4ML/day	Highest	Lower risk	Lower risk	Higher risk
Timeliness	October 2018	n/a	●	●	●

○ Does not meet ◐ Somewhat meets ● Fully meets

¹ NPC and BCR values are incremental relative to the base case

² Comprises the base NPC result with the quantified risk of the option. This tests the appropriateness of the contingency included within the cost estimates and measures the overall risk profile of project options.

The recommended option that provides the greatest confidence around meeting the objectives sustainably over at least 30 years is Option 1a, the NSW River Murray Western Route Option. As a secure long-term water source, the River Murray provides greater confidence in water security as compared Option 2, due to the limited data that exists on the bore field (the aquifer has not been subject to extended periods of pump testing, and modelling has not been comprehensively reviewed a number of times). Additionally, Option 1a is a shorter and more direct pipeline than Option 1b, and delivers greater value for

⁴ Denotes ranking where 1 is most favourable and 3 is least favourable

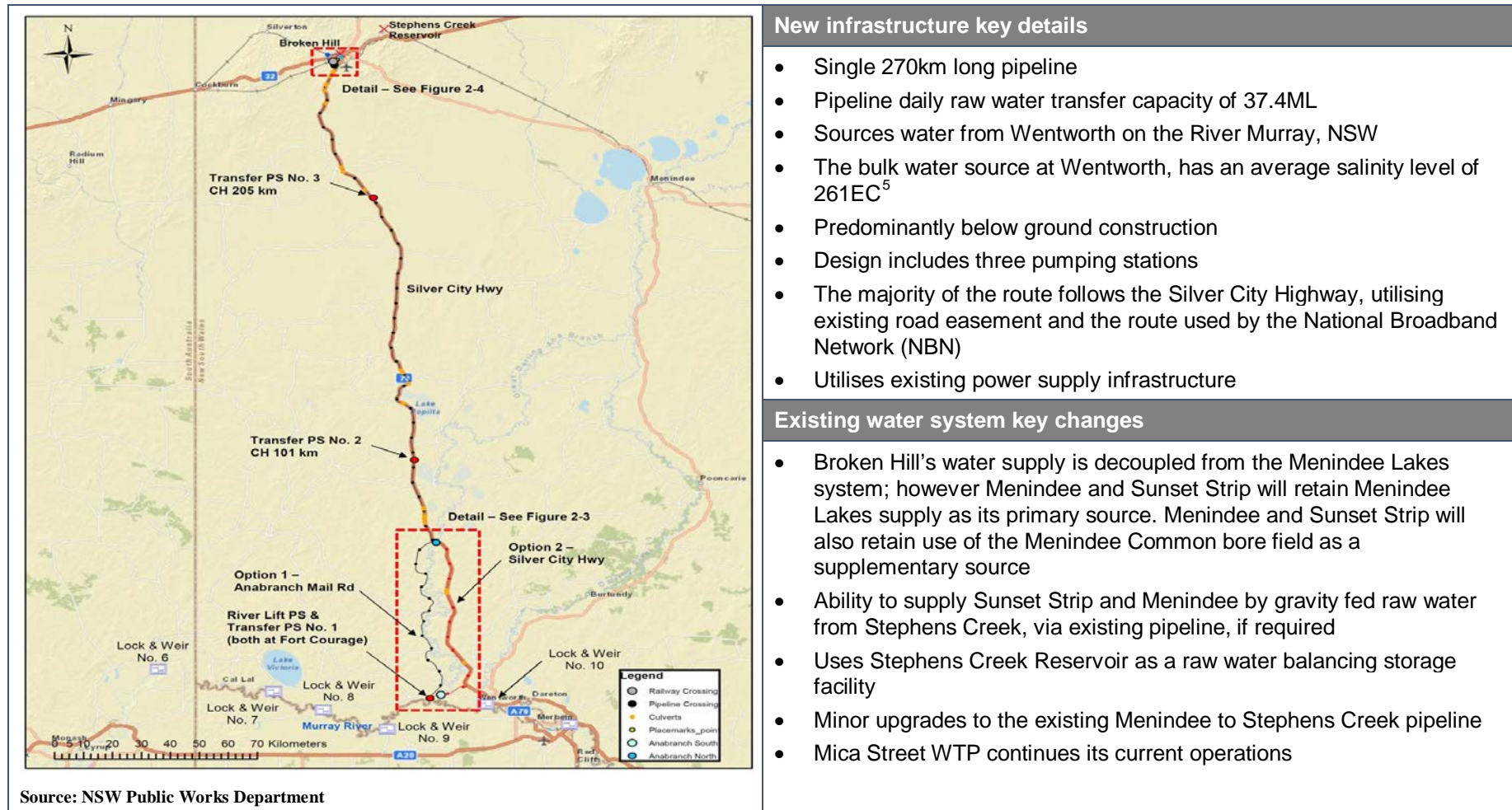
money. The recommended option also performs well on social, environmental and economic sustainability assessments.

2.7 Preferred Option

Option 1a represents an opportunity to achieve water security in the region for an extended period of time. The design, development and successful delivery of the Project, including construction of a 270km pipeline and commissioning of supporting infrastructure must be delivered in a manner that ensures a smooth transition from current water supply arrangements, including the short-term solution.

Further details of the Preferred Option are set out in the figure overleaf.

Figure 2-6: Summary of the Preferred Option



New infrastructure key details

- Single 270km long pipeline
- Pipeline daily raw water transfer capacity of 37.4ML
- Sources water from Wentworth on the River Murray, NSW
- The bulk water source at Wentworth, has an average salinity level of 261EC⁵
- Predominantly below ground construction
- Design includes three pumping stations
- The majority of the route follows the Silver City Highway, utilising existing road easement and the route used by the National Broadband Network (NBN)
- Utilises existing power supply infrastructure

Existing water system key changes

- Broken Hill's water supply is decoupled from the Menindee Lakes system; however Menindee and Sunset Strip will retain Menindee Lakes supply as its primary source. Menindee and Sunset Strip will also retain use of the Menindee Common bore field as a supplementary source
- Ability to supply Sunset Strip and Menindee by gravity fed raw water from Stephens Creek, via existing pipeline, if required
- Uses Stephens Creek Reservoir as a raw water balancing storage facility
- Minor upgrades to the existing Menindee to Stephens Creek pipeline
- Mica Street WTP continues its current operations

⁵ NSW Department of Primary Industries, March 2016.

2.8 Governance, Project Plan, Stakeholder Consultation

A core component of the Final Business Case was ensuring the successful delivery of this major water project. At the time of submission, a detailed project plan was developed, which included a procurement plan, as well as project governance and a Stakeholder Engagement Strategy to guide the delivery of the preferred pipeline option.

The delivery of a new pipeline to deliver water security over the long term required considerable experience in major project delivery and expertise in water supply. This capability does not lie within DPI Water and an appropriate delivery proponent was noted in the business case as needing to be identified for the Preferred Option to meet the objectives.

To select an appropriate proponent, DPI Water initiated an evaluation of a number of different delivery model options. To assess the most appropriate delivery model option, a range of options were developed, as well as evaluation criteria and consideration for important structural impacts. The assessment of a range of proponents was based on their ability to meet the following:

- Security - Ability to meet water security requirements over the life of the Preferred Option
- Timeliness - Capacity to commence long-term water supply prior to exhaustion of short term measures
- Service quality - Capability to meet specified quality of service standards over the Preferred Option life
- Value for money and affordability - Ability to deliver infrastructure within budget, and in a manner that minimises whole-of-life costs and customer prices
- Scalability - Engineering ability and/or efficiency improvements in the infrastructure network that enable the solution to adapt to change in demand without significant monetary penalty and onerous Government effort.

The evaluation process initially identified that Essential Water may be best positioned to manage the delivery of the Raw Water Transport Infrastructure and Services as an integrated provider given its existing role as water retailer in the region. The evaluation also highlighted that WaterNSW had a high degree of experience in delivering major water projects, including pipelines. Further, the size of their organisation and geographical scope of their operations provide confidence that WaterNSW would be well placed to deliver the Preferred Option.

The eventual proponent will be overseen by an Inter-Agency Steering Committee. The Inter-Agency Steering Committee was established to support the delivery of the Final Business Case, so its continuation through delivery ensures critical knowledge of the Preferred Option is retained to support decision making. Their purpose is to monitor, review and report on project progress, support key decisions and facilitate Government approvals to remove barriers to timely delivery

Delivery Plan

The Project Plan was designed to be delivered in 3 stages:

- Stage 1: Planning, including pre-construction activities, gaining approvals, selecting a proponent and undertaking procurement
- Stage 2: Detailed Design Construction
- Stage 3: Commissioning and handover.

Based on the evaluation of the options, the recommended procurement option for the Preferred Option was a Design and Construct (D&C) contract. This means that interested

and capable private sector consortia would be provided information about the Preferred Option's requirements and preliminary engineering feasibility studies, with the objective of the private sector experts to develop a detailed pipeline design and project delivery plan. This provided further opportunities for contestability for future operations and maintenance of the pipeline.

The procurement strategy within the Final Business Case was informed by detailed options analysis that included a formal market sounding process with more than 10 private sector respondents. The preferred procurement option was to be revisited following final selection of the proponent to confirm that the evaluation and recommendation of a D&C contract model aligned with the proponent's business model.

It was proposed that the market engagement process be structured under a 'selective request for tender', also known as a 'multi-stage tender'. This process was intended to identify suitable prospective private providers through an 'Expression of Interest' (EOI) process, following which a 'Request for Tender' (RFT) would be issued to a shortlist of prospective market providers.

The Preferred Option's timeline adopted by the business case was based on project timelines at the time, which required a solution to be operational by October 2018. The timeline would be re-visited if and when significant inflow events occur at the Menindee Lakes.

Figure 2-7: Timeline of Project delivery

Task	2016				2017				2018			
	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	
	A M J	J A S	O N D	J F M	A M J	J A S	O N D	J F M	A M J	J A S	O N D	
Funding approval	X											
Establish governance structure and finalise Project planning	█											
Develop EOI documents (project brief, response schedules, participation deed, evaluation criteria)	█	█										
EOI on market		█										
Evaluate EOI responses, prepare evaluation report and recommended shortlist		█	█									
Preliminary design and technical work	█	█	█									
Prepare RFT documents (detailed scope, draft contracts, response schedules, evaluation criteria)	█	█	█									
RFT on market			█	█	█							
Evaluate RFT responses, prepare evaluation report and recommend preferred bidder				█	█	█						
Negotiations of final contracts					█							
Commercial / financial close											X	
Land acquisition/easements				█	█	█						
Environmental planning and approvals			█	█	█	█						
Development approvals					█	█	█					
Final planning / environmental approvals in place										█	█	
Construction (contingency shaded)							█	█	█	█	█	

The Final Business Case included the need for a comprehensive stakeholder communications and engagement plan to support delivery of the Project. The objectives of the plan included managing the impacts of construction of the Preferred Option and working with the community to deliver local benefits around employment, training and legacy.

A number of entities will be involved in delivering stakeholder communications throughout delivery of the Project, including the Department of Industry on behalf of the NSW Government, WaterNSW, the selected tenderer for the Project and Essential Water as the water retailer for the region.